Old #	Standard	ACADEMIC		
		AA		**SPEAKING AND LISTENING**
AA8	Demonstrate understanding of basic interpersonal communication (listening, written, oral, etc.)	AA	1	Utilize effective verbal and non-verbal communication skills
AA13	Organize and deliver a persuasive oral presentation	AA	2	Participate in conversation, discussion, and group presentations
AA14	Demonstrate good speaking and presentation characteristics			
ED2	Interpret and clarify directions prepared by others	AA	3	Communicate and follow directions/procedures
ED3	Communicate with customers	AA	4	Communicate effectively with customers and co-workers
ED5	Identify appropriate communication methods			
		AB		**READING AND WRITING**
		AB	1	Locate and interpret written information
AA1	Read and process information and follow instructions	AB	2	Read and interpret workplace documents
AA2	Read material and describe concepts			
		AB	3	Identify relevant details, facts, and specifications
AA5	Write with accuracy, brevity, and clarity	AB	4	Record information accurately and completely
AA4	Use correct spelling, grammer, and punctuation	AB	5	Demonstrate competence in organizing, writing, and editing using correct vocabulary, spelling, grammar, and punctuation
AA3	Use correct terminology	AB	6	Demonstrate the ability to write clearly and concisely using industry specific terminology
ED4	Write steps of an ocupational process using sentences and statements as appropriate			
		AC		**CRITICAL THINKING AND PROBLEM SOLVING**

		AC	1	Utilize critical-thinking skills to determine best options/outcomes (e.g., analyze reliable/unreliable sources of information, use previous experiences, implement crisis management, develop contingency planning)
ED8	Explain the value of applying a problem solving system	AC	2	Utilize innovation and problem-solving skills to arrive at the best solution for current situation
ED9	Identify opportunities for applying problem solving techniques			
ED10	Apply a system of problem solving			
		AC	3	Implement effective decision-making skills
		AD		**MATHEMATICS**
AB1	Add, subtract, multiply, and divide four digit numbers with or without the use of a calculator	AD	1	Perform basic and higher level math operations (e.g., addition, subtraction, multiplication, division, decimals, fractions, units of conversion, averaging, percentage, proportion, ratios)
AB2	Apply basic math functions to solve problems			
AB7	Calculate with percents, rate, ratio, and proportion with the use of a calculator			
AB3	Convert between US and metric measurement systems	AD	2	Solve problems using measurement skills (e.g., distance, weight, area, volume)
AB4	Convert fractional measurement to decimal measurement			
AB5	Compute within measurement systems			
AB6	Document results of measurement activities and calculations			
AB9	Compute measurements			
AB8	Same Verbiage	AD	3	Make reasonable estimates
		AD	4	Use tables, graphs, diagrams, and charts to obtain or convey information
		AD	5	Use deductive reasoning and problem-solving in mathematics

		AE		**FINANCIAL LITERACY**
		AE	1	Locate, evaluate, and apply personal financial information
		AE	2	Identify the components of a budget and how one is created
		AE	3	Set personal financial goals and develop a plan for achieving them
		AE	4	Use financial services effectively
		AE	5	Demonstrate ability to meet financial obligations
		AF		**INTERNET USE AND SECURITY**
		AF	1	Recognize the potential risks associated with Internet use
		AF	2	Identify and apply Internet security practices (e.g., password security, login, logout, log off, lock computer)
		AF	3	Practice safe, legal, and responsible use of technology in the workplace
		AG		**INFORMATION TECHNOLOGY**
AA7	Possess basic computer keyboarding skills	AG	1	Use technology appropriately to enhance professional presentations
AA17	Demonstrate use of an industry-accepted word processing software package			
EC11	Demonstrate the use of basic computer skills (Word, Excel, Powerpoint, etc)			
		AG	2	Demonstrate effective and appropriate use of social media
		AG	3	Identify ways social media can be used as marketing, advertising, and data gathering tools
		AH		**TELECOMMUNICATIONS**
		AH	1	Select and use appropriate devices, services, and applications to complete workplace tasks
		AH	2	Demonstrate appropriate etiquette when using e-communications (e.g., cell phone, e-mail, personal digital assistants, online meetings, conference calls)
		EMPLOYABILITY		
		EA		**POSITIVE WORK ETHIC**
EA3	Same Verbiage	EA	1	Demonstrate enthusiasm and confidence about work and learning new tasks
EA1	Same Verbiage	EA	2	Demonstrate consistent and punctual attendance
		EA	3	Demonstrate initiative in assuming tasks

EA2	Implement responsibility of job position including exhibiting dependability and meeting organizationally defined expectations	EA	4	Exhibit dependability in the workplace
AA9	Implement new process steps given oral instruction	EA	5	Take and provide direction in the workplace
EA11	Follow directions and procedures			
EB5	Match employee responsibilities to employer expectations	EA	6	Accept responsibility for personal decisions and actions
		EB		**INTEGRITY**
		EB	1	Abide by workplace policies and procedures
		EB	2	Demonstrate honesty and reliability
EB3	Identify ethical characteristics and behaviors	EB	3	Demonstrate ethical characteristics and behaviors
EB4	Differentiate between good and poor business ethics			
EB8	Same Verbiage	EB	4	Maintain confidentiality and integrity of sensitive company information
EC7	Explain the importance of a business rputation	EB	5	Demonstrate loyalty to the company
		EC		**SELF-REPRESENTATION**
EA4	Demonstrate appropriate dress and hygiene for successful employment	EC	1	Demonstrate appropriate dress and hygiene in the workplace
		EC	2	Use language and manners suitable for the workplace
EA5	Demonstrate the ability to act in a polite and respectful way towards co-workers	EC	3	Demonstrate polite and respectful behavior toward others
		EC	4	Demonstrate personal accountability in the workplace
		EC	5	Demonstrate pride in work
		ED		**TIME, TASK, AND RESOURCE MANAGEMENT**

EC1	Plan and manage work schedules	ED	1	Plan and follow a work schedule
EA13	Same Verbiage	ED	2	Work with minimal supervision
		ED	3	Work within budgetary constraints
EA6	Demonstrate the ability to complete tasks on time and accurately	ED	4	Demonstrate ability to stay on task to produce high quality deliverables on time
		EE		**DIVERSITY AWARENESS**
EB2	Identify the characteristics of a diverse workforce	EE	1	Recognize diversity, discrimination, harassment, and equity
EB6	Define discrimination, harassment, and equity			
EB7	Demonstrate non-discriminatory behavior			
		EE	2	Work well with all customers and co-workers
		EE	3	Explain the benefits of diversity within the workplace
		EE	4	Explain the importance of respect for feelings, values, and beliefs of others
		EE	5	Identify strategies to bridge cultural/generational differences and use differing perspectives to increase overall quality of work
		EE	6	Illustrate techniques for eliminating gender bias and stereotyping in the workplace
		EE	7	Identify ways tasks can be structured to accommodate the diverse needs of workers
		EE	8	Recognize the challenges and advantages of a global workforce
		EF		**TEAMWORK**
AA11	Compare the roles of a team with the role of an individual	EF	1	Recognize the characteristics of a team environment and conventional workplace
EB1	Same Verbiage			
ED6	Identify components of group dynamics			
AA12	Perform techniques used as a team leader	EF	2	Contribute to the success of the team
AA10	Demonstrate the characteristics of a team player	EF	3	Demonstrate effective team skills and evaluate their importance in the workplace (e.g., setting goals, listening, following directions, questioning, dividing work)

ED7	Demonstrate productive relationships through interaction and networking			
		EG		**CREATIVITY AND RESOURCEFULNESS**
		EG	1	Contribute new ideas
		EG	2	Stimulate ideas by posing questions
		EG	3	Value varying ideas and opinions
		EG	4	Locate and verify information
		EH		**CONFLICT RESOLUTION**
AA6	Demonstrate knowledge of conflict resolution techniques	EH	1	Identify conflict resolution skills to enhance productivity and improve workplace relationships
		EH	2	Implement conflict resolution strategies and problem-solving skills
		EH	3	Explain the use of documentation and it's role as a component of conflict resolution
		EI		**CUSTOMER/CLIENT SERVICE**
		EI	1	Recognize the importance of and demonstrate how to properly acknowledge customers/clients
EC5	Identify possible actions that may lead to customer dissatisfaction	EI	2	Identify and address needs of customers/clients
EC8	Identify possible actions that may be used to correct customer dissatisfaction			
		EI	3	Provide helpful, courteous, and knowledgeable service
ED5	Identify appropriate communication methods	EI	4	Identify appropriate channels of communication with customers/clients (e.g., phone call, face-to-face, e-mail, website)
		EI	5	Identify techniques to seek and use customer/client feedback to improve company services
EC6	Identify the ways that the level of customer satisfaction may affect company success	EI	6	Recognize the relationship between customer/client satisfaction and company success
		EJ		**ORGANIZATIONS, SYSTEMS, AND CLIMATES**
AA16	Identify the organizational need for profit	EJ	1	Define profit and evaluate the cost of conducting business
EC9	Identify the effect of quality on profit			
		EJ	2	Identify "big picture" issues in conducting business

EC10	Identify the effects of continuous quality improvement	EJ	3	Identify role in fulfilling the mission of the workplace
		EJ	4	Identify the rights of workers (e.g., adult and child labor laws and other equal employment opportunity laws)
		EJ	5	Recognize the chain of command, organizational flow chart system, and hierarchy of management within an organization
		EK		**JOB ACQUISITION AND ADVANCEMENT**
EA7	Demonstrate the ability to make career decisions	EK	1	Recognize the importance of maintaining a job and pursuing a career
		EK	2	Define jobs associated with a specific career path or profession
		EK	3	Identify and seek various job opportunities (e.g., volunteerism, internships, co-op, part-time/full-time employment)
EA8	Prepare a resume, letter of application or interest	EK	4	Prepare a resume, letter of application, and job application
EA9	Complete an application for employment			
		EK	5	Prepare for a job interview (e.g., research company, highlight personal strengths, prepare questions, set-up a mock interview, dress appropriately)
EA10	Participate in an employment interview	EK	6	Participate in a job interview
		EK	7	Explain the proper procedure for leaving a job
		EL		**LIFELONG LEARNING**
		EL	1	Acquire current and emerging industry-related information
		EL	2	Demonstrate commitment to learning as a life-long process and recognize learning opportunities
		EL	3	Seek and capitalize on self-improvement opportunities
		EL	4	Discuss the importance of flexible career planning and career self-management
AA15	Demonstrate basic leadership skills	EL	5	Employ leadership skills to achieve workplace objectives (e.g., personal vision, adaptability, change, shared vision)
		EL	6	Recognize the importance of job performance evaluation and coaching as it relates to career advancement
EA12	Accept constructive criticism	EL	7	Accept and provide constructive criticism
		EL	8	Describe the impact of the global economy on jobs and careers
		EM		**JOB SPECIFIC TECHNOLOGIES**
		EM	1	Identify the value of new technologies and their impact on driving continuous change and the need for life-long learning

		EM	2	Research and identify emerging technologies for specific careers
		EM	3	Select appropriate technological resources to accomplish work
		EN		**HEALTH AND SAFETY**
		EN	1	Assume responsibility for safety of self and others
		EN	2	Follow safety guidelines in the workplace
		EN	3	Manage personal health and wellness
		OCCUPATIONAL		
		OA		**DEVELOPMENT OF BIOTECHNOLOGY IN AGRICULTURE**
OA1	Same Verbiage	OA	1	Define biotechnology and explore the historical impact it has had on agriculture
OA2	Same Verbiage	OA	2	Create a timeline and use it to explain the developmental progression of biotechnology
OA3	Same Verbiage	OA	3	Research and report on the major innovators and milestones in the development of biotechnology
OA4	Same Verbiage	OA	4	Investigate current applications of biotechnology in agriculture
OA5	Same Verbiage	OA	5	Research and report on current work being done in agricultural biotechnology
OA6	Same Verbiage	OA	6	Analyze the scope and impact of agricultural biotechnology in today's global society and economy
OA7	Same Verbiage	OA	7	Examine potential future applications of biotechnology in agriculture and compare them with alternative approaches to improving agriculture
OA8	Same Verbiage	OA	8	Research and report on emerging problems and issues associated with agricultural biotechnology
OA9	Same Verbiage	OA	9	Assess the future impact agricultural biotechnology could have on world populations
		OB		**REGULATION**
OB1	Same Verbiage	OB	1	Describe the role of agencies that regulate biotechnology
OB2	Same Verbiage	OB	2	Interpret the major regulatory issues related to biotechnology
OB3	Same Verbiage	OB	3	Research, evaluate, and articulate a major regulatory issue pertaining to biotechnology
		OC		**ETHICS OF BIOTECHNOLOGY**
OC1	Same Verbiage	OC	1	Explore ethical, legal, and social biotechnology issues
OC2	Same Verbiage	OC	2	Evaluate the benefits and risks associated with biotechnology.
OC3	Same Verbiage	OC	3	Research, evaluate, and articulate the implications of an ethical, legal, social, or cultural biotechnology issue
OC4	Same Verbiage	OC	4	Explore the emergence, evolution, and implications of bioethics
OC5	Same Verbiage	OC	5	Examine an ethical dilemma associated with biotechnology by identifying it's components
OC6	Same Verbiage	OC	6	Research and debate an ethical issue associated with biotechnology
OC7	Same Verbiage	OC	7	Explain the meaning of intellectual properties as related to biotechnology
OC8	Same Verbiage	OC	8	Examine intellectual properties associated with biotechnology by defining their component
OC9	Same Verbiage	OC	9	Analyze an intellectual property issue associated with bioethics
OC10	Same Verbiage	OC	10	Describe how agribiotechnology impacts the global economy

OC11	Same Verbiage	OC	11	Compare conventional fossil fuel production to biotechnological alternative fuel production (e.g., ethonol, biodiesel)
		OD		**LABORATORY RECORDS**
OD1	Same Verbiage	OD	1	Maintain a biotechnology laboratory notebook
OD2	Same Verbiage	OD	2	Analyze strengths of the research based on data, procedures, and propose future investigation
OD3	Same Verbiage	OD	3	Utilize external reviews and compare them to research conducted
		OE		**LABORATORY EQUIPMENT**
OE1	Same Verbiage	OE	1	Operate basic laboratory equipment and measurement devices (e.g., microscope, microipet, autoclave, centrifuge)
OE2	Same Verbiage	OE	2	Operate advanced laboratory equipment and measurement devices (e.g., thermalcycler, electrophoresis equipment, microarray, spectrometer)
OE3	Same Verbiage	OE	3	Calibrate laboratory equipment and conduct instrument qualification tests
		OF		**LABORATORY PROCEDURES**
OF1	Same Verbiage	OF	1	Demonstrate basic aseptic techniques in the biotechnology laboratory
OF2	Same Verbiage	OF	2	Demonstrate advanced aseptic techniques in the biotechnology laboratory
OF3	Same Verbiage	OF	3	Perform bioassays and experiments under aseptic conditions
OF4	Same Verbiage	OF	4	Perform procedures with biological materials according to directions
OF5	Same Verbiage	OF	5	Select an appropriate standard operating procedure for working with biological materials
OF6	Same Verbiage	OF	6	Develop a standard operating procedure for a biological process
		OG		**MATERIAL MANAGEMENT**
OG1	Same Verbiage	OG	1	Prepare simple chemical solutions using standard operating procedures
OG2	Same Verbiage	OG	2	Prepare buffers, reagents, solutions, and media
OG3	Same Verbiage	OG	3	Verify the physical properties of buffers, reagents, solutions, and media
OG4	Same Verbiage	OG	4	Identify and describe hazards associated with biological and chemical materials
OG5	Same Verbiage	OG	5	Identify the process to inventory biological and chemical materials, and maintain accurate records of supplies and expiration dates
OG6	Same Verbiage	OG	6	List the procedures to order, stock, and maintain supplies of biological and chemical materials
OG7	Same Verbiage	OG	7	Maintain a safe environment by properly identifying and disposing of laboratory waste
OG8	Same Verbiage	OG	8	Diagram the flow of waste after it leaves the laboratory
OG9	Same Verbiage	OG	9	Devise a management plan to reduce laboratory waste
		OH		**MICROBIOLOGY/MOLECULAR/ENZYMOLOGY/IMMUNOLOGY**
OH1	Same Verbiage	OH	1	Differentiate the types of organisms and demonstrate how to handle them safely
OH2	Same Verbiage	OH	2	Isolate, maintain, quantify, and store cell cultures
OH3	Same Verbiage	OH	3	Characterize the physical, chemical, and biological properties of microbes
OH4	Same Verbiage	OH	4	Explain the structures of DNA and RNA and how genotype influences phenotype

OH5	Same Verbiage	OH	5	Explain the molecular basis for heredity and the tools and techniques used in DNA and RNA manipulations
OH6	Same Verbiage	OH	6	Analyze factors that influence gene expression
OH7	Same Verbiage	OH	7	Extract and purify DNA and RNA
OH8	Same Verbiage	OH	8	Perform electrophoretic techniques and interpret electrophoresis fragmentation patterns
OH9	Same Verbiage	OH	9	Perform DNA and RNA recombinations such as basic cloning/subcloning, blotting, sequencing, and amplification
OH10	Same Verbiage	OH	10	Perform simple enzyme activity assays to detect proteins
OH11	Same Verbiage	OH	11	Perform protein separation techniques and interpret the results
OH12	Same Verbiage	OH	12	Characterize the biochemical properties of proteins
OH13	Same Verbiage	OH	13	Describe how antibodies are formed and how they can be used in biotechnology applications
OH14	Same Verbiage	OH	14	Conduct an Enzyme-Linked Immunosorbent Assay (ELISA)
OH15	Same Verbiage	OH	15	Use antibodies to detect and quantify antigens
OH16	Same Verbiage	OH	16	Explain reasons for detecting microbes and identify sources of microbes
OH17	Same Verbiage	OH	17	Research and describe the use of biotechnology to detect microbes
OH18	Same Verbiage	OH	18	Design and perform an assay to detect a target microorganism in food, water, or the environment
		OI		**GENETIC ENGINEERING**
OI1	Same Verbiage	OI	1	Explain biological, social, agronomic, and economic reasons for genetic modification of eukaryotes
OI2	Same Verbiage	OI	2	Diagram the processes and describe the techniques used to produce transgenic eukaryote
OI3	Same Verbiage	OI	3	Design and conduct an experiment to evaluate an existing transgenic eukaryote
OI4	Same Verbiage	OI	4	Describe enzymes, the changes they cause in foods and the physical/chemical parameters that affect enzymatic reactions
OI5	Same Verbiage	OI	5	Describe processes by which enzymes are produced through biotechnology
OI6	Same Verbiage	OI	6	Use biotechnology tools or microbial strain selection to improve or discover enzymes for use in food processing
OI7	Same Verbiage	OI	7	Compare and contrast the use of natural organisms and genetically engineered organisms in the treatment of wastes
OI8	Same Verbiage	OI	8	Diagram the process by which organisms are genetically engineered for waste treatment
OI9	Same Verbiage	OI	9	Monitor and evaluate the treatment of a waste product using a genetically engineered organisms
OI10	Same Verbiage	OI	10	Describe the benefits and risks associated with the use of biotechnology to increase productivity and improve quality of aquatic species
OI11	Same Verbiage	OI	11	Investigate and report on genetic engineering procedures used in the production of aquatic species
OI12	Same Verbiage	OI	12	Conduct field or clinical trials for genetically modified aquatic species
		OJ		**BIOTECHNOLOGY PROCESSES IN AGRICULTURE**
OJ1	Same Verbiage	OJ	1	Explain the functions of hormones in animals
OJ2	Same Verbiage	OJ	2	Describe the processes used to produce animal hormones from transgenic organisms

OJ3	Same Verbiage	OJ	3	Administer hormones to enhance animal health, growth, or reproduction and monitor/analyze the results
OJ4	Same Verbiage	OJ	4	Identify foods produced through fermentation
OJ5	Same Verbiage	OJ	5	Compare and contrast bioengineering and conventional pathways used in food processing
OJ6	Same Verbiage	OJ	6	Process food using biotechnology
OJ7	Same Verbiage	OJ	7	Explain the process of fermentation
OJ8	Same Verbiage	OJ	8	Describe the process used in producing alcohol from biomass
OJ9	Same Verbiage	OJ	9	Produce alcohol and co-products from biomass
OJ10	Same Verbiage	OJ	10	Explain the process of transesterification
OJ11	Same Verbiage	OJ	11	Diagram the process used in producing biodiesel from biomass
OJ12	Same Verbiage	OJ	12	Produce biodiesel and co-products from biomass
OJ13	Same Verbiage	OJ	13	Explain the process of methanogenesis
OJ14	Same Verbiage	OJ	14	Illustrate the process used in producing methane from biomass
OJ15	Same Verbiage	OJ	15	Produce methane and co-products from biomass
		OK		**BIOTECHNOLOGY TO MONITOR PROCEDURES IN AGRICULTURE**
OK1	Same Verbiage	OK	1	Describe the selective plant breeding process
OK2	Same Verbiage	OK	2	Select biotechnology tools used to monitor and direct plant breeding
OK3	Same Verbiage	OK	3	Design and conduct an experiment using biotechnology tools to evaluate selectively bred plants
OK4	Same Verbiage	OK	4	Describe biotechnology processes applicable to animal health
OK5	Same Verbiage	OK	5	Assess the benefits, risks, and opportunities associated with using biotechnology to promote animal health
OK6	Same Verbiage	OK	6	Implement animal-care protocols that use biotechnology tools to ethically monitor and promote animal systems (Institutional Animal Care and Use Committee develops animal-care protocols)
OK7	Same Verbiage	OK	7	Give examples of instances in which bioremediation can be applied to clean up environmental contaminant
OK8	Same Verbiage	OK	8	Describe the use of biotechnology in bioremediation
OK9	Same Verbiage	OK	9	Monitor and evaluate the effectiveness of bioremediation efforts by participating in a bioremediation project
OK10	Same Verbiage	OK	10	Explain the use of microorganisms in biological waste management
OK11	Same Verbiage	OK	11	Describe the processes involved in biotreatment of biological wastes
OK12	Same Verbiage	OK	12	Monitor and evaluate the treatment of biological wastes with microorganisms
OK13	Same Verbiage	OK	13	Explain the role of microorganisms in industrial chemical waste treatment
OK14	Same Verbiage	OK	14	Interpret the processes involved in biotreatment of industrial chemical wastes
OK15	Same Verbiage	OK	15	Monitor and evaluate the treatment of industrial chemical wastes with microorganisms
OK16	Same Verbiage	OK	16	Explain the global importance of biodiversity
OK17	Same Verbiage	OK	17	Select biotechnology tools used to measure biodiversity
OK18	Same Verbiage	OK	18	Use biotechnology tools to measure biodiversity in a population

OK19	Same Verbiage	OK	19	Explain the consequences of agricultural practices on wild populations
OK20	Same Verbiage	OK	20	Explain how biotechnology tools can be used to monitor the effects of agricultural practices on wild populations
OK21	Same Verbiage	OK	21	Analyze the implications of biotechnology on wild species
OK22	Same Verbiage	OK	22	Explain biomass and sources of biomass
OK23	Same Verbiage	OK	23	Assess the characteristics of biomass that make it useful for biofuels production
OK24	Same Verbiage	OK	24	Evaluate the technologies used to create biofuels from biomass
OK25	Same Verbiage	OK	25	Define industrial biotechnology, describe the benefits and risks associated with it's use in the manufacturing of fabrics, plastics, and other products
OK26	Same Verbiage	OK	26	Describe the processes used in the production of molecules for use in industrial applications
OK27	Same Verbiage	OK	27	Monitor and evaluate biotechnology processes used in the synthesis of a molecule